

IN THE CLAIMS:

1 20. (Currently Amended) A method for producing a
2 stabilized enzyme emulsion for use with a polarographic or amperometric
3 sensor comprising the steps of:

4 making an aqueous solution of a protein, either a water soluble
5 enzyme that oxidizes an organic substrate to produce
6 hydrogen peroxide or a carrier protein;

7 emulsifying a volume of a water immiscible oxygen dissolving
8 substance selected from the group consisting of
9 perfluorocarbons, silicone oils, fluorosilicone oils,
10 aromatic and aliphatic hydrocarbon oils or solids,
11 carotenoids and steroids into the aqueous solution to
12 form an emulsion;

13 contacting the emulsion with a protein crosslinking agent; and
14 spreading a mixture of the protein crosslinking agent and the
15 emulsion into a uniform layer whereby the crosslinking
16 agent crosslinks the protein within the emulsion becomes
17 crosslinked to form a solid gel.

1 21. (Currently Amended) The method of Claim 20,
2 wherein ~~to the emulsion is contacted with a~~ the aqueous solution contains a
3 carrier protein so that when prior to contacting the emulsion is contacted
4 with the protein crosslinking agent the carrier protein becomes crosslinked.

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1 22. (Currently Amended) The method of Claim 21,
2 wherein the aqueous solution contains the water soluble carrier protein and
3 the water soluble enzyme and is added to the emulsion prior to contacting
4 with the protein crosslinking agent.

23. (Cancelled).

1 24. (Currently Amended) The method of Claim ~~23~~ 20,
2 wherein the oxygen dissolving substance is a perfluorocarbon liquid selected
3 from the group consisting of perfluorooctyl bromide,
4 perfluorodichlorooctane, perfluorodecalin, perfluoroindane, perfluoro-
5 phenanthrene, perfluorotetramethylcyclohexane, perfluoropolyalkylether oil,
6 perfluoromethyldecalin, perfluorodimethylethylcyclohexane, perfluoro-
7 dimethyldecalin, perfluorotrimethyldecalin, perfluoroisopropyldecalin,
8 perfluoropentamethyldecalin, perfluorodiisopropyl decalin,
9 perfluorodiethyldecalin, perfluoromethyladamantane, perfluoro-
10 dimethyladamantane, perfluoro-di-xylethane, and perfluoro-6,7 H-undec-6-
11 ene.

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1 25. (Currently Amended) A method for producing a
2 stabilized enzyme emulsion for use with a polarographic sensor comprising
3 the steps of:

4 making an aqueous solution of a carrier protein;
5 emulsifying a volume of a perfluorocarbon liquid into the
6 aqueous solution to form an emulsion;
7 contacting the emulsion with a water soluble enzyme that
8 oxidizes an organic substrate to produce hydrogen
9 peroxide to form a mixture;
10 contacting the mixture with a protein crosslinking agent; and
11 spreading a mixture of the protein crosslinking agent and the
12 emulsion into a uniform layer whereby the crosslinking
13 agent crosslinks at least the carrier protein within the
14 emulsion becomes ~~crosslinked~~ to form a solid gel.

1 26. (Original) The method of Claim 25, wherein the
2 oxygen dissolving substance is a perfluorocarbon liquid selected from the
3 group consisting of perfluorooctyl bromide, perfluorodichlorooctane,
4 perfluorodecalin, perfluoroindane, perfluorophenanthrene,
5 perfluorotetramethylcyclohexane, perfluoropolyalkylether oil, perfluoro-
6 methyldecalin, perfluorodimethylethylcyclohexane, perfluorodimethyldecalin,
7 perfluorotrimethyldecalin, perfluoroisopropyldecalin,
8 perfluoropentamethyldecalin, perfluorodiisopropyl decalin,
9 perfluorodiethyldecalin, perfluoromethyladamantane, perfluoro-
10 dimethyladamantane, perfluoro-di-xylethane, and perfluoro-6,7 H-undec-6-
11 ene.

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1 27. (New) The method of Claim 25, wherein the step of
2 contacting the emulsion with a water soluble enzyme follows the step of
3 contacting the mixture with a protein crosslinking agent.

1 28. (New) The method of Claim 25, wherein the protein
2 crosslinking agent is selected from the group consisting of glutaraldehyde,
3 carbodiimide, pyrocarbonate, imidoesters, N-hydroxysuccinimid esters and
4 multifunctional epoxides.

1 29. (New) The method of Claim 25, wherein the protein
2 crosslinking agent is selected from the group consisting of glutaraldehyde,
3 carbodiimide, pyrocarbonate, imidoesters, N-hydroxysuccinimid esters and
4 multifunctional epoxides.

1 30. (New) The method of Claim 21, wherein an aqueous
2 solution of water soluble enzyme that oxidizes an organic substrate to
3 produce hydrogen peroxide is added to the emulsion following the step of
4 contacting with the protein crosslinking agent.